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U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

TRANSMITTAL LETTER TO THE UNITED STATES

10028.00

DESIGNATED/ELECTED OFFICE (DO/EO/US)

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR

CONCERNING A FILING UNDER 35 U.S.C. 371

n/y/a

09/806816

INTERNATIONAL APPLICATION NO.

PCT/DE99/03548

INTERNATIONAL FILING DATE

11/02/99

PRIORITY DATE CLAIMED

11/02/98

TITLE OF INVENTION

METHOD AND DEVICE FOR THE HANDLING AND HEAT TREATMENT OF BAG OR FILM PACKS

APPLICANT(S) FOR DO/EO/US

Meinhard Protz and Peter Kalisch

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☐ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☐ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
 - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☒ has been transmitted by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☒ A copy of the International Search Report (PCT/ISA/210).
8. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
 - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ have been transmitted by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
9. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
10. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
11. ☒ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

Items 13 to 20 below concern document(s) or information included:

13. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☐ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☐ A substitute specification.
18. ☐ A change of power of attorney and/or address letter.
19. ☒ Certificate of Mailing by Express Mail
20. ☒ Other items or information:

1 sheet of drawings

**** For your convenience, a copy of the PCT/International Application is enclosed herewith (although per enclosed notification, the International Bureau has transmitted a copy as well).**

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR

INTERNATIONAL APPLICATION NO

ATTORNEY'S DOCKET NUMBER

09/806816

PCT/DE99/03548

10028.00

21. The following fees are submitted:

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :**CALCULATIONS PTO USE ONLY**

- ☐ Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO \$1,000.00
- ☒ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO \$860.00
- ☐ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$710.00
- ☐ International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) \$690.00
- ☐ International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) \$100.00

ENTER APPROPRIATE BASIC FEE AMOUNT =**\$860.00**Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).**\$0.00**

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE
Total claims	0 - 20 =	0	x \$18.00
Independent claims	2 - 3 =	0	x \$78.00

\$0.00**\$0.00**Multiple Dependent Claims (check if applicable) ☒**\$270.00****TOTAL OF ABOVE CALCULATIONS =****\$1,130.00**Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28) (check if applicable). ☐**\$0.00****SUBTOTAL =****\$1,130.00**Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (f)).**\$0.00****TOTAL NATIONAL FEE =****\$1,130.00**Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable). ☐**\$0.00****TOTAL FEES ENCLOSED =****\$1,130.00**

Amount to be:

refunded

\$

charged

\$

☒ A check in the amount of **\$1,130.00** to cover the above fees is enclosed.☐ Please charge my Deposit Account No. _____ in the amount of _____ to cover the above fees.
A duplicate copy of this sheet is enclosed.☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **04-1415** A duplicate copy of this sheet is enclosed.**NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.**

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REGISTRATION NUMBER

DATE

04-02-01

1/PRTS

09/806816

METHOD AND DEVICE FOR THE HANDLING AND HEAT TREATMENT

OF BAG OR FILM PACKS

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BACKGROUND OF THE INVENTION

5 The invention relates to a method for handling and heat treating rectangular bag or film packs with a smaller thickness than length and width and having two longer and two shorter lateral edges, as well as a magazine-like carrier device for handling and heat treating a plurality of bag or film packs for performing said method.

In the sense of the present invention the term handling covers conveying, feeding, transferring, sorting, intermediate storing, gripping, etc.

10 The invention is in the field of the manufacture of bag or film packs filled with (animal) foods, in which previously manufactured (tubular) bags or film packs, which are also known as pouches, are filled with a content material in special filling and sealing devices and then closed (sealed) and are subsequently inter alia subject to sterilization before the finished products are
15 packed.

To illustrate the aims of the invention reference is made in an exemplified manner to the production of animal foods packed in film packs where, due to veterinary regulations, a specific so-called F_0 value must be respected and which for specific products is in the range 20 to 40. For this purpose it is necessary to maintain a temperature of at least 121°C at all points of the
20 finished product for a specific period of time. This can be achieved, e.g. by introducing the bag packs into a steam sterilizer with a pressure between 1.5 and 2 bar.

Although the relatively flat bag packs are very favorable compared with compact shapes such as can packs with respect to the heat penetration and the time required for it. As is known

the heat penetration rate increases in square law form with the greatest depth dimension of a body to be heated. The known procedure in which the bag packs or pouches are juxtaposed on tray-like plates, several plates being stacked in superimposed manner, is disadvantageous both with respect to the heat transfer in the sterilizer and also with respect to handling.

5 This is on the one hand due to the fact that the contact of the sterilization steam with the film packs lying on the tray-like plates is not of an optimum nature as perforated plates can only be used to a limited extent, because the perforation pattern would be transferred to the film pack materials which are relatively soft at the sterilization temperature. Also, on the other hand, because the largely manual placing of the film packs on trays represents an interruption of the otherwise substantially automated manufacturing process.

Thus, the problem of the present invention is to provide an improved method and apparatus for the handling and heat treatment of film packs or pouches. The invention solves both the problem of the partial manual handling of film packs and also the heat treatment, so that it is possible to reduce costs for the sterilization and handling of flexible film or bag packs.

SUMMARY OF THE INVENTION

From the method standpoint, this problem is solved by a method for handling and heat treating rectangular bags or film packs with a smaller thickness than length and width, having two longer and two shorter lateral edges, which is characterized by an orientation of the film packs, in which one main extension plane of the film pack containing the lateral edges forms, during handling and/or heat treatment, an angle of less than 60° with the vertical and the longer edges are oriented substantially horizontally.

The angle is preferably less than 30° . It is even more preferred that the angle is 0° , so that the film packs are in a vertical orientation resting on a longer lateral edge.

In the case of an inclined orientation, the film packs can overlap one another in scale-like manner.

From the apparatus standpoint, the problem of the invention is solved by a magazine-like carrier device for handling and heat treating a plurality of film packs, which is suitable for performing the method according to the invention, having a plurality of successively arranged, substantially parallel partitions for forming receiving pockets for in each case two mutually spaced partitions between two adjacent receiving pockets.

Appropriately the width of the partitions substantially corresponds to the longest dimension of the film packs to be received.

The height of the partitions can be smaller than the length of the shorter lateral edge of the film packs to be received.

Preferably, the mutual spacing of the partitions forming a receiving pocket substantially corresponds to the thickness of the film packs to be received.

According to a preferred embodiment, the partitions forming a receiving pocket are slightly V-shaped with an opening angle of more than 0° .

Preferably, the partitions are flexibly held on an elongated body, so that it is possible to expand the receiving pocket, while increasing the opening angle.

Preferably, the receiving pockets have a V-shaped bottom.

Appropriately the carrier device has a stackable construction.

Preferably, the carrier device is stackable in such a way that receiving pockets of a carrier device are partly arranged in gaps between receiving pockets of a carrier device to be adjacently positioned.

BRIEF DESCRIPTION OF THE DRAWING

Further advantages and features of the invention can be gathered from the following description of a preferred embodiment with reference to the attached single fig. 1, which is a detail of an inventive carrier device for handling film packs.

DESCRIPTION OF A PREFERRED EMBODIMENT

Fig. 1 shows in side view the structure of an inventive carrier device for handling a plurality of film packs given the overall designation 1. On an elongated body 2, which can comprise a suitable profile cross-section, are fitted in parallel several rectangular partitions 3 that in each case form receiving pockets 4 between them. The mutual spacing of in each case two partitions forming a receiving pocket being chosen in such a way that it is possible to receive a single film pack 5. In each case two partitions 3 forming a receiving pocket 4 are at the top, i.e. in a direction away from the body 2, fitted in a slightly V-shaped manner, in order to facilitate the insertion or introduction of a film pack 5 from above into the receiving pocket. For example, by the fixing of the lower edge of the partitions 3 to the body 2, they are held slightly flexibly on the latter, so that it is possible to increase the opening angle of the partitions if a corresponding force is exerted thereon. This can be advantageous during a heating or sterilization process, because the content of the film pack expands by up to about 4% on heating to approximately 120°C.

As is also indicated in Fig. 1, in the vicinity of the body 2, i.e. below the partitions 3, the receiving pockets 4 are provided with a V-shaped bottom 7, on which in the case of a substantially horizontal position of the body 2 or the carrier device 1, the film packs 5 rest with their longer lateral edges.

As a result of the inventive positioning of the film packs, the width dimension of the

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carrier device running perpendicular to the representation plane of Fig. 1, substantially corresponds to the longest dimension of the film packs to be received, while the height b of the carrier device, which results from the height of the body 2, plus the height of the partitions 3, is smaller than the length of the shorter lateral edge of the film packs 5, so that the latter project upwards out of the receiving pockets 4, as shown in Fig. 1.

The dimensions c by which the film packs 5 are allowed to project over the upper edge of the partitions 3 is inter alia dependent on the stability of the film packs, particularly under the action of heat (softening of the film material) and should be as large as possible, so as to aid the heat transfer processes and save material with respect to the carrier device.

40
The method according to the invention can take place in the following way. Firstly previously produced film packs are filled and sealed and introduced into carrier devices 1 according to the invention. A large number of carrier devices are combined on pallets to block-like units and sterilized. After sterilization they are again removed from the pallets and then dried.

15
The film packs are then removed from the carrier devices 1 and combined into detachable and saleable pack units 20. The film packs only have to be once inserted in and once removed from the carrier devices, which can take place without manual activity and clearly facilitates handling.

20
The inventive handling of the film packs through their standing on their longer lateral edge in inclined or perpendicular manner leads to numerous advantages compared with a lay-flat support or an upright support on a shorter lateral edge. Firstly an automated handling is possible through the use of the inventive carrier devices, magazines or cassettes due to the fixed, predetermined spacing between two film packs. This automated handling is further accelerated

by the inventive support on a longer lateral edge, because on feeding or removing shorter distances have to be covered as compared with an upright support or storage. The thickness distribution of the product contained in a film pack is also optimized with regards to heat penetration. A problem occurs here that in particular at elevated temperatures (sterilization), the film material of the packs softens and the products assume fluid-like characteristics, so that they tend to collect to a greater extent in the bottom area of a film pack, accompanied by bulging.

The bulging tendency clearly increases with the height of the film pack (static pressure of the content). This is very unfavorable for an optimum heating and/or sterilization of film packs, i.e. requiring very short heating times, where in particular in the case of animal food a specific F_0 value has to be respected, because the time required for reaching a specific temperature, under otherwise identical conditions, increases in square law form with the greatest depth dimension or thickness of the product. As a result of the handling position according to the invention these problems are largely eliminated.

The features of the invention disclosed in the description, drawing and claims are essential to the implementation of the different embodiments of the invention, both singly and in random combinations.

CLAIMS

- 0906816-070601
1. A method for handling and heat treating rectangular bags or film packs having a smaller thickness than length and width and having two longer and two shorter lateral edges comprising
5 orienting said bags or film packs so that one main extension plane of said bags or film packs containing the lateral edges forms, during handling and/or heat treatment, an angle of less than 60° with the vertical and the longer edges are oriented substantially horizontally.
 2. A method according to claim 1 wherein the angle is smaller than 30°.
 3. A method according to claim 1 wherein the angle is 0°.
 - 10 4. A method according to claims 2 or 3 wherein said bags or film packs overlap one another in scale-like manner.
 5. A magazine-like carrier device for handling and heat treating a plurality of rectangular bags or film packs, said carrier device having a plurality of successively arranged, substantially parallel partitions to form receiving pockets for one of said film bags or film packs, said carrier
15 further including two mutually spaced partitions arranged between two adjacent receiving pockets and wherein the width of the carrier device substantially corresponds to the longest dimension of said bags or film packs to be received and wherein the height of the carrier device is smaller than the length of the shorter lateral edge of said bags or film packs received therein.
 6. A carrier device according to claim 5, wherein the mutual spacing of said partitions
20 forming said receiving pockets substantially corresponds to the thickness of the film packs received therein.
 7. A carrier device according to claim 6 wherein said partitions forming said receiving pockets are arranged in a slightly V-shaped manner with an opening angle of more than 0°.

8. A carrier device according to claim 7 wherein said partitions are flexibly held on an elongated body so that said receiving pockets may be expanded while increasing the opening angle.

9. A carrier device according to claim 5 wherein said receiving pockets have a V-shaped bottom.

10. A carrier device according to claim 5 wherein said carrier device has a stackable construction.

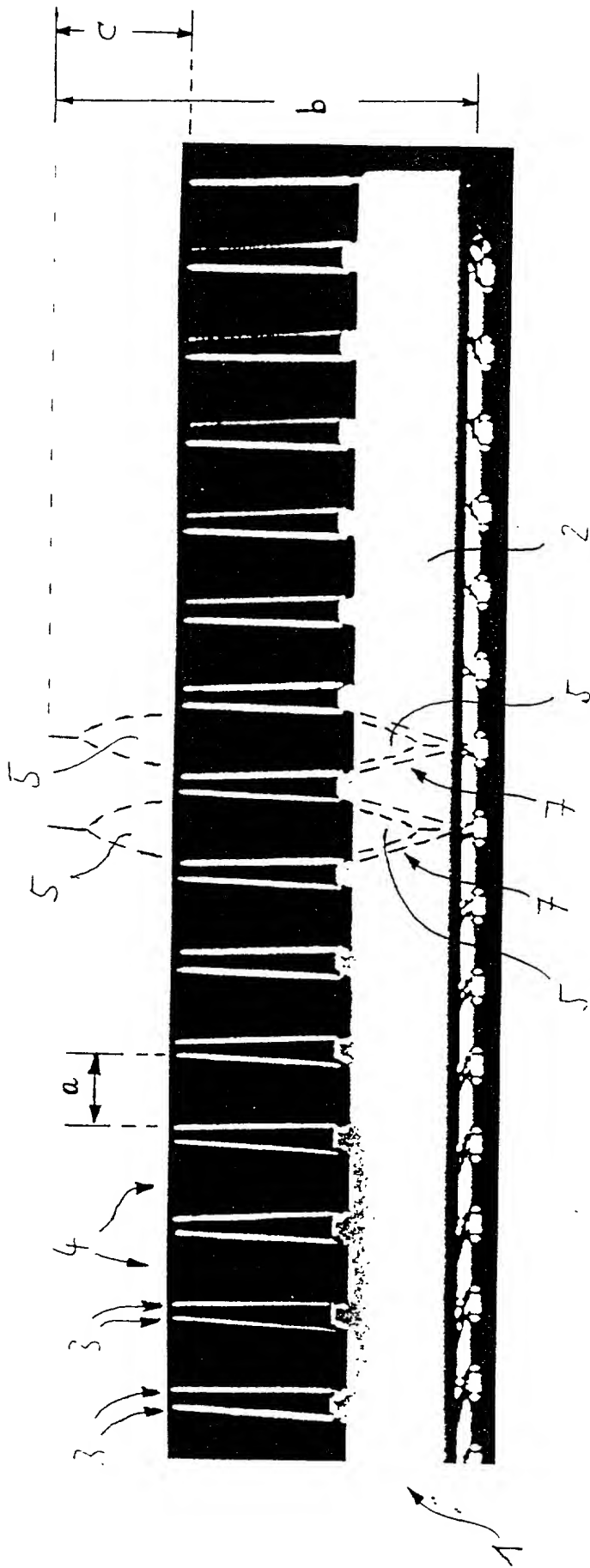
11. A carrier device according to claim 10 wherein said carrier device has a stackable construction so that said receiving pockets of one carrier device are partly positioned in gaps between receiving pockets of an adjacently arranged carrier device.

ABSTRACT

Method for handling and heat treatment rectangular bag or film packs with a smaller thickness than length and width, having two longer and two shorter lateral edges, characterized
5 by an orientation of the film packs, in which one main extension plane of the film pack containing the lateral edges forms during handling and/or heat treatment an angle of less than 60° with the vertical and the longer edges are oriented substantially horizontally.

Fig. 1

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Docket No.
10028.00

Declaration and Power of Attorney For Patent Application

English Language Declaration

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

METHOD AND DEVICE FOR THE HANDLING AND HEAT TREATMENT OF BAG OR FILM PACKS

the specification of which

(check one)

☐ is attached hereto.

☒ was filed on April 2, 2001 as United States Application No. or PCT International Application Number 09/806,816 and was amended on _____

(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) or Section 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)			Priority Not Claimed
<u>198 50 419.5</u>	<u>Germany</u>	<u>11/02/98</u>	<input type="checkbox"/>
(Number)	(Country)	(Day/Month/Year Filed)	
_____	_____	_____	<input type="checkbox"/>
(Number)	(Country)	(Day/Month/Year Filed)	
_____	_____	_____	<input type="checkbox"/>
(Number)	(Country)	(Day/Month/Year Filed)	

I hereby claim the benefit under 35 U.S.C. Section 119(e) of any United States provisional application(s) listed below:

(Application Serial No.)

(Filing Date)

(Application Serial No.)

(Filing Date)

(Application Serial No.)

(Filing Date)

I hereby claim the benefit under 35 U. S. C. Section 120 of any United States application(s), or Section 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. Section 112, I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, C. F. R., Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

PCT/DE99/03548

11/02/99

Pending

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(list name and registration number)*

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Sole or first inventor's signature

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Second inventor's signature

Date

18 June 2001

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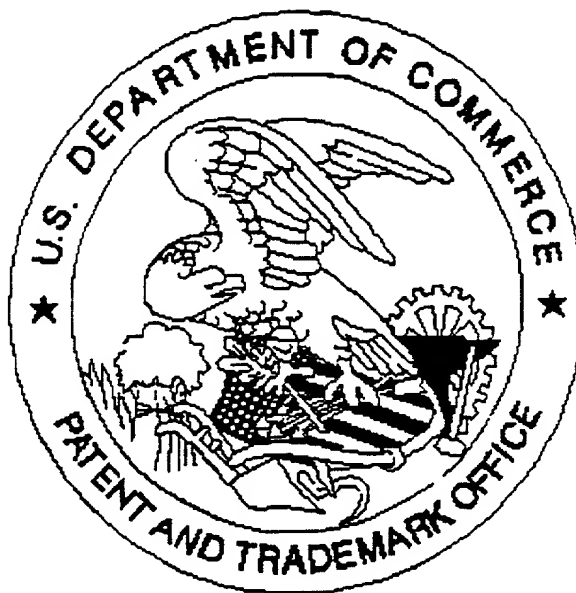
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Application deficiencies found during scanning:

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Drawings

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